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Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street S.W.
Washington, D.C. 20554

Re: *Ex Parte Comments of Telesat Canada*
GN Docket No. 12-354
Amendment of the Commission's Rules with Regard to Commercial
Operations in the 3550-3650 MHz Band

Dear Ms. Dortch:

Telesat Canada ("Telesat") hereby submits *ex parte* comments in the above-referenced proceeding, in which the Commission has sought comment on proposals to establish a terrestrial Citizens Broadband Radio Service ("CBRS") that would use the 3550-3650 MHz band (or potentially the 3550-3700 MHz band).

Telesat is an Associate Member of the Satellite Industry Association ("SIA") and supports the extensive comments and technical analyses filed by SIA¹ in this proceeding.

Although Telesat does not operate satellites in the 3550-3650 MHz band with coverage in the Americas, it is concerned that a CBRS in the band could interfere with Telesat's operations in neighboring bands. Telesat currently operates five satellites that transmit in the conventional C-band (3700-4200 MHz) with coverage of Canada, the United States and other countries in the Americas. Four of these, Anik F1, Anik F1R, Anik F2 and Anik F3, have been placed on the FCC's Permitted Space Station List². The C-band payloads on these satellites carry a variety of

¹ See Comments of the Satellite Industry Association, GN Docket No. 12-354, filed Feb. 20, 2013 ("SIA Feb. 2013 Comments"); Reply Comments of the Satellite Industry Association, GN Docket No. 12-354, filed Apr. 5, 2013 ("SIA Apr. 2013 Reply Comments"); SIA Written *Ex Parte* Presentation GN Docket No. 12-354, filed Aug. 20, 2013 ("SIA Aug. 2013 *Ex Parte*"); Comments of the Satellite Industry Association on Licensing Models and Technical Requirements in the 3550 – 3650 MHz Band, filed 5 Dec. 2013 ("SIA Dec. 2013 Comments"); Reply Comments of the Satellite Industry Association on Licensing Models and Technical Requirements in the 3550 – 3650 MHz Band, filed 20 Dec. 2013 ("SIA Dec. 2013 Reply Comments"); SIA Written *Ex Parte* Presentation filed Feb. 1, 2014 ("SIA February 2014 *Ex Parte*"); Comments of the Satellite Industry Association on the Further Notice of Proposed Rulemaking, filed July 14, 2014 ("SIA July 2014 Comments"); Reply Comments of the Satellite Industry Association on the Further Notice of Proposed Rulemaking, filed August 15, 2014 ("SIA Aug. 2014 Comments").

² See <http://transition.fcc.gov/ib/sd/se/permitted.html>. The fifth satellite, Anik G1, has coverage in the conventional C-band in South America, Central America and the Caribbean.



services, including telephony and data services to otherwise unserved communities, military services, and air traffic control data. Moreover, Telesat and its customers operate extensive C-band earth station networks in Canada³ that communicate with these satellites, including a number of earth station locations in close proximity to the border with the United States. In some cases, the path between a CBRs transmitter located in the United States and an earth station receiver in Canada would be almost entirely over water, with minimal terrain blockage. There is a risk that emissions from terrestrial small-cell transmitters in the 3550 – 3650 MHz band (or potentially the 3550-3700 MHz band) could cause LNA/LNB overdrive and/or out-of band interference that will disrupt existing services carried on Telesat satellites, as well as services that will be required in the future.

Telesat notes the technical analyses filed with the SIA 2013 SIA *Ex Parte* and the SIA July 2014 Comments concerning unwanted emission interference, and the extensive record⁴ in the Radiocommunications Sector of the International Telecommunications Union ("ITU-R") concerning sharing between IMT-Advanced transmitters and C-band earth station receivers. Depending on the assumptions used, the studies show that separation distances (i.e. exclusion zones) of tens of kilometers between the terrestrial transmitter and the earth station receiver are required to prevent unacceptable interference. Thus, services furnished on Telesat satellites both in the United States and Canada⁵ could be at risk unless the Commission adopts appropriate limits on terrestrial usage of the 3550-3650 MHz band (or potentially the 3550-3700 MHz band).

Telesat urges the Commission to take the following into account in this proceeding:

- There is no action that can be taken at the earth station receiver to attenuate unwanted emissions that fall within the receiver passband. Such emissions must be controlled by a combination of exclusion zones and strict out-of-band emissions standards for the terrestrial transmitters.
- Aggregate interference into earth station receivers must be considered. Thus all transmitters must be taken into account and the density of transmitters operating in the 3550-3650 MHz band (or potentially the 3550-3700 MHz band) is an important criterion. This is particularly important where interfering transmitters may be ubiquitous and mobile, i.e. operate at locations that vary over time.
- Since interference may be created across international borders, protection criteria adopted by the Commission should be based upon ITU studies and standards.
- The Commission needs to ensure that exclusion zones, including those adjacent to international borders, may be reliably observed, and needs to have in place an enforcement mechanism to deal with violations, intentional or otherwise. Vague or theoretical concepts for software-driven dynamic interference control (Spectrum Access System, or SAS) are insufficient. Approval should be granted only after such systems

³ As in the United States, C-band receive-only earth stations in Canada are not required to be licensed. See CPC-2-6-01 — *Procedure for the Submission of Applications to License Fixed Earth Stations and to Approve the Use of Foreign Satellites in Canada* at 4 <http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf01940.html>.

⁴ See e.g. ITU Report M.2109

⁵ See RKF Engineering Report submitted with SIA July 2014 Comments.



have actually been developed and are proven in field tests to operate as required and to be resistant to malicious tampering.

- The Commission must use caution and conservative assumptions when setting technical standards for terrestrial operations in the 3550-3650 MHz band (or potentially the 3550-3700 MHz band). Should the standards prove insufficient and actual unacceptable interference occur into earth station receivers once a large number of terrestrial transmitters are in use, there would be no practical way to rectify the situation.

The above-referenced proceeding involves technical challenges that are exceedingly complex. Telesat urges that the Commission proceed with extreme caution to ensure that existing and future satellite services within the United States and neighboring countries are adequately protected.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "John Forsey", is written over a faint, light-colored signature line.

John Forsey
Director, Corporate Development